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Technical Note

Double single-port transanal pouch surgery: a novel technique for rectal excision and ileo-anal pouch anastomosis for ulcerative colitis

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ABSTRACT

Surgery for ileoanal pouch has evolved dramatically over the last 30 years. Many of the advances relate to minimally invasive approaches that not only offer cosmetic benefits but also have advantages that are well described in the literature. In this technical note, the authors describe the double single-port transanal pouch operation. An abdominal single-port is used for total colectomy, at the site of the ileostomy. A transanal single-port is used for the 'bottom-up' rectal resection. The technical steps and potential advantages of the technique are discussed in detail. Double single-port transanal pouch surgery is technically feasible and can have significant benefits in ulcerative colitis patients.

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Cirurgia de bolsa transanal com duplo acesso por porta única: uma nova técnica de excisão retal e anastomose de bolsa ileoanal para colite ulcerativa

RESUMO

A cirurgia para bolsa ileoanal evoluiu excepcionalmente nos últimos 30 anos. Muitos dos avanços referem-se a abordagens minimamente invasivas, que não só oferecem benefícios estéticos, mas também significam vantagens já devidamente descritas na literatura. Nesta nota técnica, os autores descrevem a operação de bolsa transanal com duplo acesso por porta única. Uma única porta abdominal é utilizada para a colectomia total, no local da ileostomia. Uma única porta transanal é usada para a ressecção retal "de baixo para cima".

Palavras-chave:

Colite ulcerativa

Reto

Procedimentos cirúrgicos

minimamente invasivos

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As etapas técnicas e potenciais vantagens da técnica são discutidas em detalhes. A cirurgia de bolsa transanal com duplo acesso por porta única é tecnicamente viável e pode representar benefícios significativos em pacientes com colite ulcerativa.

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Introduction

Surgery for ileoanal pouch has evolved considerably over the years. Minimally invasive techniques have been the mainstay of recent developments and low stapled anastomoses have been possible with the advent of advanced stapling devices.^{1,2} The latest advance in minimally invasive surgery is the transanal rectal resection, and this technique has been well described in pouch surgery.³

There are several potential advantages to the transanal approach. The advantages are probably best conferred in the narrow male pelvis and in obese patients. This dissection laparoscopically is frequently difficult and may often leads to conversion. In addition, the technique avoids multiple stapler firings across the distal rectum which can increase the risk of anastomotic leak.⁴ Subsequent reinforcement of the anastomosis through the anus has the theoretical advantage of further reducing the leak rate.

Currently, only technical descriptions and small case series discuss the feasibility and outcomes of the transanal pouch procedure.^{3,5,6} There are also different anal platforms that can be used: TEM (Transanal Endoscopic Microsurgery, Richard Wolff, Germany), TEO (Transanal Endoscopic Operation, Karl Storz, Tuttlingen, Germany) or detachable single port devices. TEM and TEO are fixed platforms that can make the procedure challenging in some cases. Detachable devices do not have fixation, and allow the surgeon to have better triangulation and comfort to perform the procedure.

The aim of this technical note is to describe in detail the surgical steps of the double single-port transanal pouch surgery, and to discuss possible advantages of the technique.

Surgical technique

In the double single-port procedure, a GelPoint Port (Applied Medical, Rancho Santo Margarita, California) is placed at the ileostomy site, and a GelPoint Path (Applied Medical, Rancho Santo Margarita, California) is used for the transanal procedure. In order to establish a pneumoperitoneum, a single incision is performed at the stoma site, generally in the right iliac fossa. If the patient had a previous colectomy with mucous fistula, the fistula with the rectal stump can be mobilised and released into the abdominal cavity, after which the GelPoint is inserted. This has a ring to secure it to the abdominal wall and a lid through which ports are inserted.

The GelPoint device has three working ports and a standard 10 mm 30° laparoscopic camera (Karl Storz, Tuttlingen, Germany) is used, which can be inserted into any of the ports. An additional 5 mm port can be placed in the left iliac fossa to allow better triangulation and retraction, if necessary. This

site is usually used to place the pelvic drain at the end of the procedure. Pneumoperitoneum is usually maintained at a pressure of 12 mmHg.

The rectal dissection can be commenced in the TME (total mesorectal excision) plane or the close rectal approach from the abdominal port. The superior rectal artery is then divided. The rectal phase of the operation is commenced concurrently and a purse string suture is placed approximately 3–4 cm proximal to the dentate line with the aid of a Lonestar retractor (CooperSurgical, Trumbull, USA). The amount of rectal mucosa that is left behind after the initial distal rectal division is based on the degree of proctitis and the presence or absence of dysplasia. When dysplasia is not the indication for surgery or when the distal proctitis is not severe, a 1–2 cm rectal cuff is left to reduce the risk of stool leakage.

The GelPoint Path transanal device is placed in the anal canal (Fig. 1). Two standard ports are placed within the gel followed by a 12 mm Airseal port (Conmed USA). Air seal insufflation is commenced at 5 mmHg until the device is active and then increased to 20 mmHg. The dissection is started laterally using a diathermy hook. We prefer to use a hook rather than a harmonic scalpel, as it helps to reduce smoke and facilitates endoscopic viewing (Fig. 2). The close rectal dissection is continued such that the abdominal and rectal operators approach the mid rectum from opposite directions. In cases with associated dysplasia, the TME plane must be respected and followed. During this part of the procedure, the two operators can assist each other to ensure safety and adequate retraction (Fig. 3). Simultaneous dissection also reduces the operation time and can make the operation easier. Once the proctectomy is completed the specimen is brought out through the stoma site, or transanally (Fig. 4). The J-pouch is then created, by standard stapling, after bringing the ileum out through the stoma site, and the anvil of the stapling device is sutured and connected to an extender, usually a number 18 Foley catheter (Fig. 5).

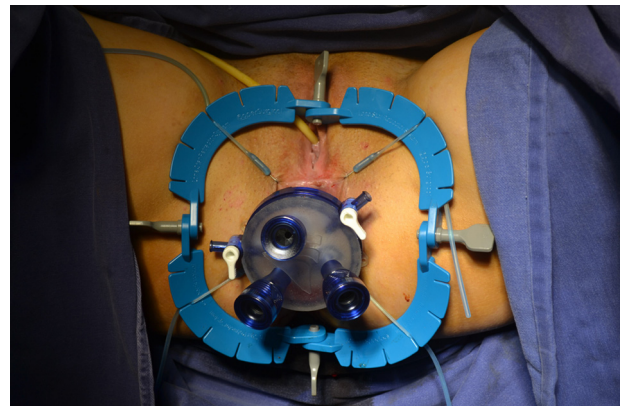


Fig. 1 – Port and trocars.

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